IDRC and Medicinal Plants:

Priority Issues and Research Needs

A Summary Document

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I. Background

In much of the world, people in rural communities rely on medicinal plants as an affordable, accessible, and culturally relevant source of health care. However, in many cases, there has been little support for local health systems using these plants[1], and research has primarily focused on ethnobotanical and phytochemical studies. Recently, though, interest in medicinal plants research has increased dramatically for a wide-range of reasons including an inability of many rural peoples and governments to afford western based pharmaceutical care, revitalization of indigenous knowledge and "traditional"[2] health systems, a greater appreciation for local and indigenous knowledge, international concerns for the conservation of biodiversity, and income-generating potential. Similarly, the stakeholders involved are diverse and numerous, and include local peoples, local researchers, local NGO's, national ministries (health, agriculture, environment), international conservation agencies, development agencies, small, micro and medium enterprises, pharmaceutical companies, and others.

IDRC currently supports a number of projects related to medicinal plants in several countries in Asia, Africa, and Latin America. As one might expect, there exists a wide range of projects which vary over their objectives, methodologies, and results. Although the centre has a long history of projects related to medicinal plants and/or traditional health, current projects are housed within the SUB PI, and thus are strongly linked to issues of biodiversity conservation.

Recent documents from India (Cherla and Holley) and Africa (Dubé and Gasengayire) have contextualized medicinal plants issues in these regions, and identified needs and opportunities for medicinal plants research and development. These "needs" are based on discussions from regional and international meetings on medicinal plants issues, analysis of current research, and discussion with African and Indian researchers. This paper draws from these documents, along with reports from TRAMIL, project information, and other literature and discussion related to medicinal plants issues, in order to outline some of the fundamental issues which IDRC must prioritize and address in order to develop an informed strategy for medicinal plants research. Many of the project specific information given in this summary document is based on the concrete experience of the TRAMIL program. This is primarily because I had easier access to reports and information from the TRAMIL project than specific projects in Africa or South Asia, and is not intended to discount the valuable work of projects in these regions.

This document is divided into three sections. The first section contains a brief overview of current IDRC actitivities in the three regions of research: South Asia, Africa, and Latin America. The

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[1] Formal and governmental support given to health systems such as Ayurvedic, Chinese and Jamu systems in South and South East Asia are clear exceptions.

[2] I have put "tradition" in quotation marks to emphasize the voice of many indigenous peoples who refer to their local health systems as "traditional health". The quotes are also to draw attention to the dynamic and evolving sense of tradition, rather than the notion of returning to a previous static way of life. "Traditional" health practices are constantly adapting and changing, and hence may also be thought of in terms such as "local" health practices.

second part presents a brief overview of ten priority issues, and identified research needs in these areas. Although these categories touch on a wide-range of issues, the topics are not mutually exclusive as there are strong interconnections with implications for research strategies and results. Finally, the last section concludes with a discussion of how these issues may relate to the development of a comprehensive and integrated strategy for medicinal plants research and preliminary steps needed to work towards this process.

II. Regional Projects:

IDRC currently supports medicinal plants projects with some or all of the following objectives (which vary depending on the project and the region):

- conservation and sustainable use of biodiversity
- improve access to local, safe, and effective health care
- document indigenous knowledge
- develop marketing and employment opportunities
- networking

i) South Asia

Use of medicinal plants in South Asia has been classified under two "streams" of health care described as "classical systems" (e.g. Ayurvedic, Siddha, Tibetan) and "folk/tribal systems". While classical systems are recognized as formal health care systems, local folk/tribal systems have received less support and recognition. IDRC supports medicinal plants research in both of these streams. To date, projects are situated in South Asia: India, Sri Lanka, Nepal, and Bangladesh.

The Neem project is one of the earliest IDRC medicinal projects in this region. In April, 1994, in response to a large number of proposals received on various aspects of medicinal plants research, IDRC (SARO office) initiated the IDRC Medicinal Plants Network (IMPN) based in New Delhi. IMPN aims to support projects in three main areas:

1) Conservation and Cultivation - such as the development of sustainable *ex-situ* propagation techniques for ten commonly used Ayurvedic plants; baseline assessment of biodiversity of medicinal plants; and research *in situ* conservation strategies.
2) Marketing and Enterprise - study of extraction and trade of medicinal plants
3) Health and Medicine - projects related to the standardization of ayurvedic preparations for arthritis; training of rural people in green health kits; documentation of medicinal plant use.

IMPN has also supported and participated in a number of conferences and workshops on medicinal plants research including:

- *National Consultation to Prepare a Draft National Medicinal Plants Conservation and Outline of National Programs for the Conservation of the Medicinal Plants of India* Madras, India; 9-10 January 1997
- *South Asia Conference on Tribal and Folk Medicinal Plant Resources*

Thirupati, India; 4-6 September 1996

- *Workshop on Role of Bamboo, Rattan and Medicinal Plants in Mountain Development*
  Pokhara, Nepal; 15-17 May 1996
- *Workshop on Medicinal Plants*
  Calicut, India; 6-8 February 1995 (Results published as *Healing Forests, Healing People* Bajaj and Williams 1995.)

ii) Africa

Traditional medicine(s) and medicinal plants are the primary sources of health care for most people in Africa. The diversity of traditional and local medical systems is remarkable, and dependent on cultural context. IDRC has a long history of medicinal plants (and traditional health) research in Africa, as evidenced in the Africa report, with projects dating back to 1974. Most research has focused on ethnobotanical and ethnotherapeutical documentation, biodiversity conservation of endangered and commonly used species, and the valorization of traditional medicine and medicinal plants. Some medicinal plants projects are directly linked to documentation of other biological resources such as foods. Recent projects are also beginning to focus on policy issues and identify research priorities[3].

See report by Dubé and Gasengayire for a comprehensive list of IDRC projects, abstracts, and contacts in Africa.

iii) Latin America

To date, IDRC supported research in this region has concentrated in Central America with the work of TRAMIL. TRAMIL (Traditional Medicine for the Islands) is a network of projects in the Caribbean basin (16 countries and 2 French islands) for the applied research and dissemination of knowledge and uses of medicinal plants. Research involves ethnobotanical studies using a uniform methodology and through dissemination workshops on TRAMIL medicinal plants for community health. The project has recently began a second phase with the long-term aim of developing locally based management programs for medicinal plants to meet communities' needs over their own health problems. Education and dissemination of information back to the communities is a strong component of these projects[4].

III. Priority Issues and Identified Needs

Following is a brief discussion of some of the identified areas relating to medicinal plants requiring further research and support. At the end of each section is an overview of preliminary identified "needs", some of which are general to medicinal plants research, and others which are clearly

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[3] Proj 96-5522 Medicinal Plants and Herbal Medicine in Africa: Policy Issues on Access, Ownership and Conservation.

[4] TRAMIL methodology is discussed in more detail in section (III.v) Safety and Efficacy.

specific to IDRC. As will be evident, many issues are interconnected and fall under several of these ten categories:

i. Conservation and Sustainable Use of Biodiversity
ii. Health
iii. Marketing and Employment
iv. Networking
v. Safety and Efficacy
vi. Legislation and Policy Making
vii. Indigenous Knowledge
viii. Gender
ix. Participatory Research and Community Participation
x. Education and Dissemination of Information

i) Conservation and Sustainable Use of Biodiversity

There has been concern that the diversity of medicinal plants is diminishing and knowledge surrounding these plants is being lost, partly as a result of deforestation and habitat destruction, and also from cultural change and the loss of transfer of knowledge. In some cases, a lack of validation and institutional support given to local health practices has resulted in decreased use of plants and a loss of these resources. Alternatively, in other instances, overharvesting and exploitive trade have hindered the sustainable use of medicinal plants. Documentation and education of medicinal plants use are viewed as immediate and effective approaches to conserving the rich diversity of these resources. However, the TRAMIL programme has also acknowledged the conservation paradox: educating people about a plant's medicinal properties to encourage its use may lead to over-exploitation and unsustainable, haphazard use[5]. There is a critical need to develop appropriate (co-)management strategies for the conservation and sustainable use of medicinal plants.

To date, IDRC has supported a number of projects researching the identification of rare and endangered species, ethnobotanical surveys, and appropriate national and community-based conservation strategies. All regions have identified the need for further research in these areas and for extensive documentation of medicinal plants and related indigenous/local knowledge. The need for greater community participation and socio-cultural context has been emphasized. Control of and access to resources by local and indigenous peoples are issues of particular concern.

Strategies include:

ex-situ	***in-situ***
botanical gardens	forest management
national seed banks	sacred groves

[5] In order to address this contradiction, the TRAMIL programme incorporates efforts to develop sustainable conservation strategies.

herbaria
gene banks
home gardens
sustainable wild harvesting
local (village) level seed banks
community-based methods
strategies for cultivation
incentives for sustainable management
rehabilitation of degraded lands

Needs:

- research, develop and implement appropriate (co-)management strategies for conservation and sustainable use
- document local/indigenous knowledge and use of medicinal plants
- identify rare and endangered species
- increase community participation, participatory methodologies
- facilitate control and access to resources by local and indigenous peoples

ii) Health

According to WHO, over 80% of the world's population rely on medicinal plants for health care. This is partly because, for many, allopathic medicines and treatment are unaffordable, but also because local health care and traditional medicines are more culturally and socially relevant. As Dubé and Gasengayire emphasize in the Africa report, it is critical to not view medicinal plants in isolation, but to recognize the intricate linkages between medicinal plants and local health systems, and the local health practitioners involved.

At a recent IDRC supported workshop in Abidjan, Côte d'Ivoire (April 23-26, 1996), participants reviewed the general concepts and benefits of "traditional" medicine which included the "cultural and geographical proximity" to the patient. Other identified advantages include the richness and diversity of therapeutic approaches, the cultural significance of substances used, the modest cost of care and flexibility of payment mechanisms, the holistic dimension, and the greater availability of "traditional" therapists. These have been described as the 4 A's: availability, acceptability, accessibility, and adaptability (Anyinam 1987). However, "traditional" practitioners and plant-based pharmacopoeia generally are not supported as a national form of health care (excluding the Asian classical medical systems), and are often viewed as "backward", "witchdoctoring", unsafe and ineffective. Other constraints include the absence of consistent policy, the isolated context of "traditional" practitioners, and insufficient funds for research and development (Dubé and Gasengayire 1997).

For the most part, local health care involves some combination of "traditional" medicine, allopathic treatment, and other classical systems (such as Ayurvedic medicine). Choice of treatment depends on the particular ailment and the economic, social, and cultural conditions; medicinal plants are generally used in the context of self-administered health care, local healers, and classical medical systems. As choice of health care is intricately linked to belief systems, research involving medicinal plants as a means of local accessible health care must be situated within an understanding of local health systems. Local communities and indigenous peoples

have explicitly argued for this need to consider the context of local and "traditional" health systems in medicinal plants research (see Bodeker 1996; GIFTS of Health[6]).

Some of IDRC supported projects focus specifically on the health aspects of medicinal plants research. For example, the main objective of the TRAMIL project is to improve local access to safe, effective, and culturally appropriate health care. IMPN supports some projects relating to local health care and the standardization of medicines involved in the classical medical systems. Projects in Africa research the use and conservation of popularly used medicinal plants and involve local herbalists and practitioners. The aim has been to support existing systems and knowledge, rather than developing new health care or new medicines. The objective is not to deter from using western allopathic medicine, but to support accessible alternatives for health care which are inexpensive, locally relevant, and accessible to rural populations.

Needs:

- ensure safety and efficacy (see later section)
- integration of local and modern medicine and/or recognition of the complementary nature of different health care systems
- support formal government health care sector to use medicinal plants as part of health care policy
- dissemination of information (e.g. project results; appropriate use of plants for health care)
- facilitate co-operation between local health practitioners, government ministries, health care professionals
- support the organization of local and traditional healers into local and/or national associations to facilitate collaboration, and to deal with the state, health care professionals and researchers with a unified voice.
- work with local healers (associations) to support and promote the use of medicinal plants.
- improve attitude and perception of health care professionals toward local health practitioners
- develop methods for standardization and quality control at industrial level
- support research of ethnoveterinary aspects of medicinal plants
- support participatory research methodologies
- education (e.g. training modules for educational curriculum)

iii) Marketing and Employment

The development of medicinal plants as a source for income generation has sparked interest among a number of stakeholders. As one might expect, this area covers a range of activities from small-scale local production, medium enterprise, large-scale industrial use, and

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[6] The GIFTS of Health initiative aims to promote research into, and the inclusion of, traditional health systems as significant components of affordable and sustainable health care in developing countries, including a specific emphasis on medicinal plants and biodiversity conservation. The program conducted regional conferences in South and Central America, Africa and Asia. Currently, the program is housed at Oxford.

international trade, and involves players at all stages of the market chain. Within IDRC, market interests have been discussed most extensively in the context of South Asia, as reflected in the recent India report's primary focus on the economic potential of these non-timber forest products (NTFPs). This report emphasizes the need for extensive research into marketing possibilities (and the lack of research to date) and the benefits of promoting the cultivation and sustainable harvesting of the plans that are the most viable in the marketplace. In this context, potential financial gains are seen as incentive for conservation and sustainable use of this resource. This revenue-generating approach is congruent with IDRC objectives to develop income opportunities.

In Africa, UNIDO and WHO co-hosted a meeting in Brazzaville, Congo in November, 1995 on the promotion and development of the industrial use of medicinal plants. This widely attended conference identified a number of needs on national, regional, and international levels in order to facilitate the development of the medicinal plants industry. These included more systematic documentation on medicinal plants, their cultivation, R&D, and regulatory requirements and human resources and facilities for the industrial-scale production of standardized high-quality medicines (Dubé and Gasengayire p.78). To date, however, IDRC projects in Africa have not directly focused on the industrialization of medicinal plants. In Central America, phase II of TRAMIL includes a collaborative program which investigates the economic potential value of medicinal plants and aims to develop small-scale, conservation oriented enterprises.

In order to promote the production of low-cost herbal medicines, the Africa report identifies the need to find simple technology, based on existing knowledge, that are applicable or adaptable to local manufacturing including standardized production, adequate quality control and preservation of products (Dubé and Gasengayire p.77)

Needs:
This area raises a number of areas requiring further research, albeit differing on the scale of industry:

- standardized production and quality control
- preservation of products
- safety and efficacy
- ensuring community/local benefits
- IPR and ICPR[7] protocols
- protocols, legislation, and monitoring
- identify potential marketable plants
- role of "western" business interests (e.g. pharmaceutical companies) and definition of relationship of IDRC to "western" industry re: medicinal plants.
- impact of industrialization of medicinal plants on local healers and health systems
- potential impacts of the marketing plants, including cultivation (socio-economic, health, gender)

[7] ICPR is a term preferred by some indigenous groups and other organizations to include cultural rights and address the need to understand intellectual property rights in the context of the relevant culture.

iv) Networking

There is an urgent need in medicinal plants research for networking, co-operation and co-ordination. Although, a wealth of research and experience exists and a remarkable number of organizations and researchers are involved, there are few communication and networking structures in place. Structures are required to facilitate the exchange of information and experience and to co-ordinate activities on all levels: local, national, regional, and international; and to involve the various stakeholders interested in this research: local communities, local and "traditional" health practitioners (and associations), health care professionals, researchers, national governments and ministries (health, agriculture, environment), local and regional NGO's, international organizations, and the private sector.

Currently, IDRC supports networks in all three regions: TRAMIL, IDRC Medicinal Plants Network (IMPN) in South Asia, and the development of a network in Africa. In the context of these projects, a number of meetings and conferences have been held which have helped build linkages and develop strategies for approaching medicinal plants issues. There has been some discussion that IDRC may contribute to the development and management of a global network or secretariat. With the breadth of organizations and interests involved, co-ordinated and formalized communication systems are clearly needed.

Bangalore meeting -- February '98

This meeting is a follow-up of an International Consultation on the conservation of medicinal plants convened by WHO, IUCN, and WWF, and held in Chiang Mai, Thailand in 1988 (see Akerele, Hewood, and Synge 1991). It is certain that this significant gathering will prove influential in determining global and local agendas for medicinal plants research, and provides an ideal opportunity for IDRC to communicate its experience, strategy, and existence in a global context of medicinal plants research.

Needs:

- facilitate networking, communication, and collaboration at national, regional, and international levels.

This may include:

- support local practitioners/traditional healers associations
- facilitate linkages and co-operation among various stakeholders such as local researchers, traditional practitioners, national governments and ministries, local NGO's.
- establish global network
- network and co-ordinate with other international organizations (IUCN, WB, WHO)
- identify and formalize communication with other networks (e.g. Asian Network on Medicinal and Aromatic Plants) and regional organizations involved in medicinal plants research
- participate in upcoming regional and international meetings
- collaborate with Canadian players
- build linkages between IDRC supported networks (TRAMIL, IMPN, AFRICA)

v) Safety and Efficacy

Safety is a priority issue in medicinal plants research, with particular relevance to the promotion of medicinal plants as a method of health care. While most projects involve testing, there is some concern that research and trials are inadequate to ensure safety in medicinal plants use. In addition, a lack of standardization, quality control, and monitoring processes have augmented concern about the safety and toxicity of medicinal plants. Generally, bibliographic information (from NAPRALERT[8]) is used in conjunction with laboratory testing and trials (LD_{50}) to determine levels of toxicity. However, toxicity is dependent on preparation, use, and storage techniques.

Efficacy is similarly a critical issue, yet to some degree, controversial. Generally, medicinal plants are initially identified by local peoples and/or healers as being effective treatment for a particular ailment. Testing for a plant's efficacy refers to a laboratory measure of the bio-chemically active ingredient in the plant compound in the treatment of the identified ailment. This information is sought through bibliographic searches and laboratory tests and trials. However, some people have raised concern that this may not be a true measure of efficacy as this testing process does not take into account other influential factors, such as synergism of drug activity, detoxification effects of traditional preparations, and the context of healing as effective treatment.

Safety issues have been debated extensively among the IDRC Ethics Review Committee. Notably, the TRAMIL methodology has received positive review by IDRC staff and others in regards to its approach to safety and toxicity issues. Under the TRAMIL approach, plants are classified under one of 4 categories:

1) REC - recommended (non-toxic, bio-chemically effective)
2) TOX - toxic
3) INV - investigate (more information needed)
4) NOT REC - not recommended (non-toxic, not proven to be biochemically effective).

This last category is a new addition. Previously, these plants would be put under the "investigate" category. TRAMIL does not promote or investigate plants used to address "life-threatening" diseases such as AIDS, cancer, malaria, or diabetes. Rather, the focus is on commonly used local remedies.

Much concern and apprehension towards the use of medicinal plants stems from a lack of understanding of the safety and efficacy of their use. This negativity is augmented by perceived lack of hygiene in preparation and preservation of remedies, inaccuracy of diagnoses and dosages, and a view of local healing as "backward". Education, then, is vital to ensuring proper and appropriate use of medicinal plants. However, the logistics of ensuring safety and efficacy are amplified in the scale of industrial use of medicinal plants; there is a need for

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[8] The Natural Products Alert (NAPRALERT) at the University of Illinois has documented the ethnomedicinal uses for more than 9,000 species, including monocotyledons, dicotyledons, gymnosperms, pteridophytes, bryophytes and lichens.

standardization and regulation of production, and means of monitoring to ensure quality production.

Needs:

- to develop legislation and protocols for safety and efficacy[9]
  NB: The main objective of an upcoming International Symposium on Herbal Medicine is to formulate an international protocol which could serve to regulate the use of herbal medicine. This symposium is cosponsored by UNIDO and the International Institute for Human Resource Development (San Diego State University) and will take place June 1-4, 1997. Gilles Forget will be attending.
- emphasis on education to ensure proper and appropriate use of medicinal plants
- standardization and regulation of production
- develop monitoring mechanisms to ensure safety
- communicate with other organizations and researchers successful strategies for approaching safety and efficacy issues (e.g. TRAMIL)
- investigate considerations of efficacy beyond bio-chemical laboratory testing
- facilitate access to bibliographic information and previous research; new and regionally accessible databases are needed. For example, the Africa report points to frustrations with NAPRALERT which is not easily accessible and does not include information available in other languages.

vi) Legislation and Policy Making

Multi-level policies and legislation are required to regulate the practice of herbal medicine and , the use of medicinal plants, standards of quality and standardized protocols for the production of plant medicines, and the preservation and marketing of medicinal plants (Dubé and Gasengayire).

To date, IDRC projects have not focused on the development of policies and legislation specifically in the area of medicinal plants except for a recent IDRC project which investigates policy issues on access, ownership, and conservation of medicinal plants and herbal medicines in Africa (96-5522). However, IDRC, and the SUB PI, supports a number of initiatives in policy making, particularly related to the Convention on Biological Diversity, such as The Crucible Group's work in IPR issues[10]. IDRC may consider applying its experience in supporting the development of international policy and legislation to the area of medicinal plants research.

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[9] Two documents prepared by WHO are viewed internationally as useful reference tools for proper evaluation of medicinal plants: *Research directions for the safety and efficacy of herbal medicines* and *Directions for the evaluation of herbal medicines.*

[10] See The Crucible Group (1994) *Peoples Plants and Patents: the impact of intellectual property on trade, plant biodiveristy and rural society*, Ottawa: IDRC; and Posey, Darrell (1996) *Beyond Intellectual Property*, Ottawa: IDRC.

Needs:

Support the development of multi-level policy and legislation in the following areas:

- standardized protocols for the production of plants medicines
- quality standards and monitoring procedures
- safety and efficacy regulations
- IPR/ICPR, compensation for indigenous knowledge[11]
- botanical gardens and IPR issues
  This area builds on the IDRC/RAFI supported conference in Montreal which investigated the relationship of botanical gardens, industry, and local communities. Currently there is an undefined area of how donor countries and indigenous groups may receive compensation or IPR relating to botanical garden collections.
- recognition of traditional/local medicines as part of official national health care policy
- control over and access to biological resources by local and indigenous people
- conservation and sustainable management of biological diversity

vii) Indigenous Knowledge (IK)

Increasing attention has been paid to the importance of indigenous and local knowledge of the environment and natural resources, and the vital role of this knowledge, and of local peoples, in the development of sustainable resource management strategies. Researchers are also increasingly acknowledging the "scientific" validity of IK. With concern that indigenous knowledge is being lost with older generations and cultural change, there is a sense of urgency in the need to document the knowledge and use of medicinal plants. However, there exist a number of real and valid concerns over the process of documentation, control of and access to this knowledge, and ensuring benefits to local communities. Some peoples fear that this knowledge will be "stolen", and they will receive nothing in return, particularly when considering the involvement of multinational pharmaceutical companies and the development of a multi-billion dollar industry based on these plants and knowledge. Access and rights to knowlege, and related benefits, are discussed under the rubric of intellectual (and cultural) property rights.

IPR/ICPR

Further research is needed on the impact of intellectual (and cultural) property rights on the preservation and maintenance of traditional knowledge, innovations, and practices of indigenous and local communities, and the development of possible alternative agreements. IPR issues relevant to medicinal plants include "bioprospecting", relationships with pharmaceutical companies, patents, "shared benefits" and ultimately control over knowledge.

To date, IDRC medicinal plants projects have not focused on IPR issues. One project has justified this by suggesting that since research focuses on non life-threatening ailments and on

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[11] Some indigenous groups have called for a moratorium of research on medicinal plants until IPR regulations are in place.

commonly used remedies, and not a search for a "new" medicine, pharmaceutical companies and industry will not be interested. However, this does not discount the possibility of IPR issues developing at a later time, and warrants due consideration.

Needs:

- documentation of indigenous and local knowledge re: medicinal plants issues
- participatory research methodologies
- community control and access to knowledge
- develop IPR/ICPR legislation and protocols
- sensitivity to "secrecy" of local practitioners
- ensure local/community benefits from research

viii) Gender

Many reports refer to the predominant role of women as providers of local and family health care, and as primary harvesters and "caretakers" of medicinal plants. However, little attention has been paid to issues of gender or gender relations in medicinal plants research.

A few of IDRC supported projects have focused on women's use and knowledge of medicinal plants. A project in Africa has focused on women and biodiversity of food crops and medicinal herbs (93-0034). TRAMIL works primarily with mothers' and women's groups who are the primary source of community expertise for commonly used traditional remedies. In some cases, unfortunately, the label "gender" has been applied misappropriately to refer to the inclusion of a woman on the research team.

The Africa and India reports both refer to the need for "participation of women at all levels". While the involvement of women is, without doubt, crucial, there is also a strong need to incorporate gender issues and analysis in all aspects of medicinal plants research. For example, gender considerations may include ways women and men are involved differently in the harvesting and use of medicinal plants, in choice and access to health care, and in the various stages of the marketing chain. Although women are currently the primary users and caretakers of medicinal plants, as research in this area acquires higher status and economic benefits, gender roles potentially could shift as some men may position themselves to receive more of the benefits.

Needs:

- integrate gender issues and gender analysis into projects
- promote understanding of importance of gender issues among researchers
- liaise with Gender and Sustainable Development Unit to obtain support in facilitating this process

ix) Participatory research and Community Participation

As studies have noted, participatory research is successful not only in sustaining long-term research goals, but also in building local research capacity and facilitating community empowerment. All regions have highlighted the need to support and develop participatory research involving traditional practitioners and local communities. Local and indigenous peoples and researchers have strongly voiced the need for full participatory research in the area of medicinal plants. However, the term participatory research denotes a wide range of meanings for many different people, from full participation in the design, implementation, and analysis of a project to participation in the identification and collection of plants. It is critical to recognize the value of full "community" participation in the research process as a prerequisite to the success of long-term protection and conservation of medicinal plants. Participatory research must be supported at the earliest stages of the research process.

Needs:

- encourage participatory research involving communities and local health practitioners
- support training in participatory research methodologies

x) Education and Dissemination of Information

Although some research supports local medicines and their applications, community health workers and others refrain from using them as they are unaware of the safety and efficacy of local remedies (TRAMIL report). There is a need to look beyond simply documenting this knowledge, and to consider how it may be best applied for use by local communities, practitioners or associations. This may include education of local women and mothers of ways to use some common plants for health care such as "green kits", or promotion of strategies for the conservation and sustainable use of popularly used species. Information and experience of projects must be communicated at multi-levels: to local peoples, national governments, regional associations, and to other researchers and organizations.

Needs:

- dissemination of information to local communities re: safe and appropriate usage of medicinal plants; strategies for conservation and sustainable use
- curriculum development to include "modules" on traditional medicines and pharmacopoeia in medical and health care programmes
- communication of results and experiences of projects through networks, workshops and conferences, and publications
- communicate information to national ministries in order to inform health policy
- build research capacity and training in research methodologies

IV. Towards a Comprehensive Strategy

i) IDRC and Medicinal Plants

As described above, IDRC supports a diversity of projects in medicinal plants research, which vary in objectives and methodologies, and take place in differing contexts depending on the regions and countries involved. In developing an "IDRC strategy", then, it is critical to recognize the wide scope of projects, and to be sensitive to the uniqueness of local social, cultural, political, and economic contexts.

With that said, it has also been suggested that IDRC's *strength* rests in the breadth of research that it supports. Alternatively, most (international) organizations generally focus on one primary area: for example, WHO concentrates on health issues, the World Bank focuses on the economic potential of medicinal plants, and the IUCN concentrates on biodiversity conservation aspects. In contrast, IDRC approaches medicinal plants in a more "holistic" manner, in recognizing the interconnections of these issues and incorporating research which addresses all of these objectives. Clearly, medicinal plants research comprises a number of interrelated issues, such as health care, conservation strategies, indigenous knowledge, and the commercialization of medicinal plant products, issues which cannot be considered in isolation. In addressing the inherent connections involved in medicinal plants research and many issues which are relevant to the SUB theme on a whole, IDRC is well situated to be comprehensive in its approach towards medicinal plants research. This integrated and comprehensive approach may further justify its position as an appropriate structure to facilitate a global network.

ii) Ethical Considerations

In working towards a comprehensive and informed strategy, it is critical to recognize that ethical issues are prevalent through each of these priority areas, and that these concerns have direct implications on the research process and results at both project and policy levels. As there are a number of stakeholders and interests involved in medicinal plants research, each with differing mandates, methodologies, and explectations, several questions arise regarding the research process. How is the "community" involved? Who is controlling the research? What happens to the knowledge after it is documented? Who retains control and access to this knowledge? Who benefits from the research and in what way? Is the research socially and culturally appropriate? What are the gender impacts of such research? Is this research promoting safe and effective alternatives to health care? Ethical considerations involve issues of the research process itself, such as participatory research, community involvement, gender issues, social and cultural relativity; and also incorporate broader implications of research such as IPR/ICPR, health and safety, effects of marketing, and involvement with multi-national business. As these issues touch on many of the areas discussed above, it is critical to address ethical concerns at preliminary stages of developing a research strategy, as well as on an on-going basis. As a support agency, establishing our own position vis à vis these ethical issues, perhaps in the form of formalized ethical guidelines, will both aid in clarifying our strategy as well as providing a clear mandate to our research partners.

iii) Steps Towards Developing a Comprehensive Strategy

In the development of a comprehensive and integrated strategy, it is critical to address the priority areas discussed above and situate IDRC's position and responsibilty to these issues of medicinal plants research. In clarifying our goals and objectives, it is similarly crucial to be sensitive to locally defined research needs and priorities. In this regard, communication and discussion both within the Medicinal Plants Working Group, and with our research partners, is key to the development of a successful strategy. Within IDRC, the Medicinal Plants Working Group is a fundamental structure to be involved in the formation of a cohesive approach, as this group cuts across disciplines, program initiatives, and regional offices. However, to ensure an effective and beneficial process with relevant and applicable results, it is essential that an effective communication strategy is developed first. Members may contribute their experience and expertise in assessing and prioritizing the research "needs", assessing internal capabilities, and working towards an informed strategy. It is also vital to consult directly with project researchers, and building strong network links will facilitate this process. In clarifying and focusing IDRC's approach to medicinal plants research, we will better be able to support our research partners as well as situating the Centre's position in the global arena.

Following, then, are some preliminary steps towards developing an integrated strategy for medicinal plants research at IDRC:

1) Identification of needs.
2) Development of in-house communication strategy.
3) Prioritization of needs.
4) Review ethical considerations.
5) Assessment of internal capabilities.
6) Discussion paper of comprehensive strategy.

V. References

IDRC reports

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